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ProductInformation

Anti-phospho-Insulin Receptor/Insulin-Like Growth Factor-1 Receptor (IR/IGF1R) (pTyr$^{1158/1162/1163}$)
Developed in Rabbit, Affinity Isolated Antibody

Product No. **I 2033**

Product Description

Anti-phospho-Insulin Receptor/Insulin-Like Growth Factor-1 Receptor (IR/IGF1R) (pTyr$^{1158/1162/1163}$) was developed in rabbit using a synthetic phosphorylated peptide derived from the region of IR that contains tyrosines 1158, 1162 and 1163 as immunogen. The corresponding residues in the IGFR are tyrosines 1131, 1135 and 1136. The antibody is preadsorbed to remove any reactivity towards a non-phosphorylated IR/IGF1R. The final product is generated by affinity chromatography using an IR-derived peptide that is phosphorylated at tyrosines 1158, 1162 and 1163. Anti-phospho-IR/IGF1R (pTyr$^{1158/1162/1163}$) specifically recognizes human insulin receptor and insulin-like growth factor-1 receptor phosphorylated at tyrosines 1158, 1162 and 1163. The cross reactivity with mouse and rat IR/IGF1R (100% homologous) has not been tested. It is used in immunoblotting applications.

The IR and IGF1R are heterotetrameric proteins consisting of two ligand binding α subunits and two β subunits that each contains a tyrosine kinase domain. Biological actions of insulin and IGF1 are mediated by their respective cell surface receptors, both of which are receptor tyrosine kinases that regulate multiple signaling pathways through activation of a series of phosphorylation cascades. Insulin/IGF1 binding to the extracellular domain leads to autophosphorylation of the receptor and activation of the intrinsic tyrosine kinase activity, which allows appropriate substrates to be phosphorylated. These two receptors differ in sequence in regions that confer specificity for the designated ligand as well as in certain intracellular signaling domains. These differences allow insulin and IGF1 to regulate different physiological functions through receptors that share a very similar structure. Phosphorylation sites that are unique to each receptor presumably play a key role in these signaling differences. The catalytic loops within the tyrosine kinase domains of the IR/IGF1R contain a three tyrosine motif corresponding to Tyr1158, 1162 and 1163 (for the IR) and Tyr1131, 1135 and 1136 (for the IGF1R). [2-4]

It is generally believed that autophosphorylation within the activation loop proceeds in a progressive manner initiating at the second tyrosine (1162 or 1135), followed by phosphorylation at the first tyrosine (1158 or 1131), then the last (1163 or 1136), upon which the IR or IGF1R becomes fully active.[4]

Reagent

Anti-phospho- IR/IGF1R (pTyr$^{1158/1162/1163}$) is supplied as a solution in Dulbecco's phosphate buffered saline, pH 7.3 containing 50% glycerol, 1 mg/ml BSA (IgG and protease-free) and 0.05% sodium azide. The amount of the reagent is sufficient for 10 blots.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazard and safe handling practices.

Storage/Stability

Store at –20 °C. For extended storage, prepare working aliquots. Due to the presence of 50% glycerol the antibody remains in solution at –20 °C. Centrifuge the vial briefly before opening, mix gently, remove excess solution from pipette tip with clean absorbent paper. pipette slowly. The antibody is stable for at least 12 months when stored appropriately. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

A recommended working concentration of 0.1 to 1 µg/ml is determined by immunoblotting using CHO-T cells transfected with a vector containing the insulin receptor and stimulated with insulin and/or with 3T3-L1 adipocytes +/- insulin stimulation.

Note: In order to obtain best results in different techniques and preparations, we recommend determining optimal working concentration by titration test.

References

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4. Ottensmeyer, F. P., et. al., Mechanism of transmembrane signaling: insulin binding and the insulin receptor. Biochemistry, **39,** 12103-12112 (2000).

AH/JK 2/2004